

CLAIMS

1. An imaging apparatus comprising a flash for emitting light onto an object, an image pickup device formed from a plurality of pixels, each of which can perform any of an exposure operation and a reading operation thereof at a timing different from that of the other, a detector circuit for detecting a brightness of image information formed by the image pickup device, and a control circuit for controlling operations of the image pickup device and of the detector circuit, said imaging apparatus characterized in that:

said control circuit causes the flash to fire a preflash before a main-flashing operation by the flash, causes the image pickup device to form an image at the time of the preflash, and causes the detector circuit to detect the brightness of image information formed at the time of the preflash, to compute an amount of main-flashing light to be fired by said flash on the basis of the detected brightness of the image information formed at the time of the preflash; and

said control circuit causes starting the exposure operation simultaneously for all the pixels of said image pickup device at the time of the preflash by said flash, whereby to form the image at the time of the preflash.

2. The imaging apparatus as described in claim 1, characterized in that:

said apparatus further comprises a memory unit for storing image information formed by said image pickup device before a pre-flashing operation by the flash; and

when said pickup device starts a during-preflash exposure operation, said control circuit causes said pickup device to read the image information which have been stored in said memory unit, instead of an image to be formed by said image pickup device at the time of the

preflash, and outputs the read image information to a downstream image recording apparatus or image output apparatus.

3. An imaging apparatus comprising a flash for emitting light onto an
5 object, an image pickup device formed from a plurality of pixels, each of
which can perform any of an exposure operation and a reading operation
thereof at a timing different from that of the other, a detector circuit for
detecting a brightness of image information formed by the image pickup
device, and a control circuit for controlling operations of the image pickup
10 device and of the detector circuit, said imaging apparatus characterized
in that:

said control circuit causes the flash to fire a preflash before a
main-flashing operation by the flash, causes the image pickup device to
form an image at the time of the preflash, causes the detector circuit to
15 detect the brightness of image information formed at the time of the
preflash, causes the image pickup device to form a before-preflash image
with said flash not fired before the preflash operation by said flash, and
causes the detector circuit to detect the brightness of image information
formed before the preflash, to compute a differential value obtained from
20 the brightness of image information formed before the preflash and the
brightness of image information formed during the preflash respectively
detected by said detector circuit, and compute an amount of
main-flashing light to be fired by the flash on the basis of the computed
differential value; and

25 said control circuit causes starting the exposure operation
simultaneously for all the pixels of said image pickup device before a
preflash operation and during a preflash operation by said flash, whereby
to form the images before the preflash operation and during the preflash
operation.

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4. The imaging apparatus as described in claim 3, characterized in that:

said apparatus further comprises a memory unit for storing image information formed by said image pickup device before said image pickup
5 device forms an image before the preflash; and

when said pickup device starts a before-preflash exposure operation, said control circuit causes said pickup device to read the image information which have been stored in said memory unit, instead of images to be formed by said image pickup device before the preflash and
10 during the preflash, and outputs the read image information to a downstream image recording apparatus or image output apparatus.

5. The imaging apparatus as described in claim 3, characterized in that said image pickup device comprises an XY addressable image sensor.

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6. The imaging apparatus as described in claim 5, characterized in that said XY addressable image sensor comprises a CMOS image sensor.